

## **REMARKS**

### **Status of the Claims**

Claims 26, 28-30, 32-34, 36-37 and 39-40 are presented. Claims 26, 28-30, 32-34 and 39-40 are amended to utilize the transitional phrase "consisting essentially of" in connection with the micro-emulsion, as discussed below. In addition, claim 26 is amended to make explicit that the microemulsion is an oil-in-water microemulsion which increases the field efficacy of the agrochemical. Support for the requirement that the micro-emulsion is an oil-in-water type is found, inter alia, in the specification on page 1, lines 21-22, and page 2, lines 8-11. Support for the requirement of increasing the field efficacy of the agrochemical is found on page 3, lines 31-32, and page 12, lines 20-29, and in the Example, Table 2 and page 16, lines 4-7. Also, claim 26 is amended to include the weight ratio range of hydrophilic emulsifier to the combined hydrophilic and lipophilic emulsifiers. Support is found on page 9, lines 27-29 and in original claims 9 and 22, now cancelled.

Claim 35 is cancelled without prejudice. No new claims are added.

No new matter has been introduced.

### **Summary of the Invention as Claimed**

As presently amended, the claims are directed to methods for treating plants with an agrochemical comprising spraying the plants with the agrochemical in combination with an oil-in-water type of micro-emulsion. As now claimed, the composition consists essentially of (a) about 5-50% of an oil phase component; (b) about 2-20% of a hydrophilic emulsifier, preferably an alkyl (oligo)glycoside (see claims 32 and 40); (c) about 2-15% of a lipophilic co-emulsifier, preferably a glycerol fatty acid ester or sorbitan fatty acid ester (see claims 33 and 34); and (d) about 10-90% water. The oil phase in preferred embodiments consists essentially of at least one member selected from the

group consisting of methyl oleate and methyl laurate (claim 29). The agrochemical in preferred embodiments comprises a glyphosate herbicide (claim 37).

**Rejections under 35 U.S.C. § 112, first paragraph**

Previously pending claims 26, 28-30, 32-37 and 39-40 were rejected under 35 U.S.C. § 112, first paragraph as failing to comply with the written description requirement. The Examiner stated that the "consisting of" language was new matter, since the adjuvant compositions displayed in Table 1, page 13, required citric acid and/or propylene glycol, which would be excluded by "consisting of".

Although applicants do not necessarily agree with the correctness of the Examiner's assertions, and while reserving the right to pursue claims of essentially the same scope, in order to further prosecution, applicants have amended the pending claims to "consisting essentially of" language. In view of this amendment, the Examiner is respectfully requested to reconsider and withdraw the written description rejection.

**Rejections under 35 U.S.C. § 103(a)**

Previously pending claims 26, 28-30, 32-37 and 39-40 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the combined teachings of Capuzzi et al. (US 5,905,072; "Capuzzi") and Auda et al. (US 6,586,366; "Auda"). This rejection is respectfully traversed.

Capuzzi discloses adjuvants for systemic fungicides in the form of a microemulsion comprising 10-30% water, 20-50% of a mixture of methyl esters of fatty acids, 0.5-20% of anionic surfactant, 5-20% of at least one nonionic surfactant with an HLB of 13-18 and a cloud point of >65°C, for example alkyl polyglucosides, and 5-25% of at least one nonionic surfactant with an HLB of 10-12. Capuzzi requires an anionic surfactant, selected from alkylbenzenesulfonates and alkylsulfosuccinates, and their metal salts.

As recognized by one skilled in the cosmetic arts, the anionic surfactants required by Capuzzi are substantially different from the balanced combination of nonionic emulsifiers required by the claims pending in the present application. Important in this regard is the requirement that the compositions have a ratio by weight of hydrophilic emulsifier to the combined weight of hydrophilic emulsifier and lipophilic co-emulsifier of from about 0.60 to about 0.80. As commonly known in the art, emulsions, particularly microemulsions, are sensitive to the combination of emulsifiers used to form the microemulsion formulation. Thus Capuzzi's anionic surfactants, if added to applicants' microemulsion formulations, would materially affect the emulsifying properties of the nonionic emulsifying agents present, by lowering the overall hydrophilic-lipophilic balance (HLB) value, which could disrupt the microemulsion.

Auda discloses oil-based emulsifiable concentrates and agrochemical formulations resulting therefrom, comprising (a) at least one oil component; (b) at least one surfactant hydrocarbyl saccharide (alkyl polyglycoside); and (c) at least one other non-ionic surfactant, which is polyalkoxylated. When the concentrates contain water, they are described as "a water-in-oil colloidal emulsion or a microemulsion in which the water is dispersed as very fine droplets such that the composition is clear or transparent" (col. 1, lines 46-49). Thus, Auda's concentrates, if microemulsions at all, would be water-in-oil microemulsions.

In contrast, the adjuvant microemulsions of applicants are oil-in-water microemulsions. One skilled in the art would understand that the "water-based" concentrates (page 1, lines 21-22), in which "water replaces a significant portion of the hydrocarbon solvents normally used" (page 2, lines 8-11) would be oil-in-water microemulsions. In addition, applicants' adjuvant microemulsions were designed to be combined with a water-soluble or substantially water-soluble agrochemical (page 3, lines 26-28; page 9, lines 30-31).

Further, the additional nonionic surfactant (c) of Auda is polyalkoxylated with an average of 2-40 alkylene oxide groups (C2-C8 alkylene oxide, preferably C2-C3 alkylene oxide). Adding at least 2 moles of alkylene oxide would shift the

HLB value to higher numbers, thereby moving the emulsifiers out of the "lipophilic" category required by applicants.

As commonly known in the art, emulsions, particularly microemulsions, are sensitive to the combination of emulsifiers used to form the microemulsion formulation. Thus Auda's alkoxyated nonionic surfactants, if added to applicants' microemulsion formulations, would materially affect the emulsifying properties of the balance of nonionic emulsifying agents present, by raising the overall HLB value, and thereby changing the ratio of hydrophilic to total hydrophilic plus lipophilic emulsifiers (0.60 to 0.80), which could disrupt the microemulsion.

Further, alkoxyated nonionic surfactants are identified by applicants as undesirable due to the large amount required in the formulation, poor biodegradability and phytotoxicity to plants (page 1, line 25 through page 2, line 3; page 2 lines 11-14).

Thus, even though applicants do not necessarily agree with the Examiner's characterizations of Capuzzi and Auda, it is clear that one skilled in the art reading Capuzzi and Auda would not be lead to applicants' claimed methods without the benefit of applicants' disclosure. This is impermissible hindsight reconstruction.

### **Conclusion**

In summary, in view of the above claim amendments and remarks, Applicants believe that the pending claims as amended are in condition for allowance. The Examiner is respectfully requested to reconsider, withdraw the rejections and allow the claims.

If any additional fees are required in support of this application,

authorization is granted to charge our Deposit Account No. 50-1943.

Respectfully submitted,

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